Draft Final Report SP-T1: Effects of Project Operations and Features on Wildlife and Wildlife Habitat

OROVILLE FACILITIES RELICENSING
FERC PROJECT NO. 2100

STUDY OBJECTIVE(S)

- The primary objectives of this study are to:
  - identify any on-going and potential future project-related effects on wildlife and wildlife habitat
  - provide information that can be used to identify potential protection, mitigation, and enhancement measures
  - identify species trade-offs associated with management and operation of project facilities.

WATER LEVEL FLUCTUATIONS- LAKE OROVILLE

- Historic Lake Oroville water surface elevations have ranged from a high of 900 feet above mean sea level to a low of about 640 feet above mean sea level
- OCAP 2020 projections indicate that annual Lake Oroville water level fluctuations are likely to increase as environmental, local, and export water supply needs increase over time.

WATER LEVEL FLUCTUATIONS-LAKE OROVILLE

- Water level fluctuations create a harsh environment for establishment of plant cover within the drawdown zone.
- Loss of soil to wave action, periodic inundation; followed by severe desiccation have resulted in a generally barren drawdown zone.
- Lack of vegetative cover within the drawdown zone severely limits wildlife use of this area. Thirty-six wildlife species were been detected on at least one occasion during field surveys using habitats within the drawdown zone

WATER LEVEL FLUCTUATIONS- LAKE OROVILLE

- CWHR modeling of barren habitat indicate that this habitat type is essential for 17 species in Butte County. However, CWHR predicts that up to 82 wildlife species in Butte County may utilize barren habitats at some point in their life cycle
- These species richness numbers for barren habitat are among the lowest for any wildlife habitat in the project area.

WATER LEVEL FLUCTUATIONS- LAKE OROVILLE

- USBR statistical analyses of the effects of reservoir water surface elevation and bald eagle productivity on Lake Shasta indicate a positive correlation between bald eagle productivity and average water surface elevation during April through July.
- Bald eagles may be affected by water surface elevation on Oroville in a similar manner. However, the paucity of eagle reproduction data and the relatively small number of nesting eagles on Oroville do not allow meaningful statistical analyses

WATER LEVEL FLUCTUATIONS- DIVERSION POOL, THERMALITO FOREBAY, AND THERMALITO AFTERBAY

- Changes in the Diversion Pool water surface elevation are minimal and normally vary within a range of 222.5 feet to 224.5 feet
- Thermalito Forebay generally operates with minimal fluctuations in water surface elevation ranging between 221.0 and 224.5 feet
- Water level fluctuations occur on a weekly basis within the Thermalito Afterbay. These elevations generally range between 127 and 135 feet above mean sea level. However, water surface elevation fluctuations between 124 and 136 feet can occur.

WATER LEVEL FLUCTUATIONS THERMALITO AFTERBAY

- In contrast to the Lake Oroville, the drawdown zone of the Afterbay supports rich wildlife assemblages and a high degree of habitat diversity. Further, operational water level fluctuations provide habitats generally absent from other project facilities with more constant water levels. Survey data indicate that exposed mudflats seasonally provide habitat for 14 species, shallow water habitats support an additional 32 species and wetland margin support an additional 25 species.

WATER LEVEL FLUCTUATIONS THERMALITO AFTERBAY

- The wildlife habitats created by construction and operation of the Afterbay have resulted in one of the most diverse wildlife assemblages within the project area. However, for some life stages of some species (primarily nesting/brooding waterfowl and nesting grebes) the water level fluctuations at the Afterbay can adversely impact production and survival.

WATER LEVEL FLUCTUATIONS THERMALITO AFTERBAY

- Monitoring of the effects of Thermalito Afterbay water level fluctuations on nesting waterfowl during 2002 indicated that flooding of waterfowl nests was adversely affecting waterfowl production.
- In cooperation with stakeholders, DWR modified spring 2003 Afterbay water level fluctuations and evaluated associated impacts to waterfowl production.
- Monitoring of the 2003 experimental Afterbay water level fluctuations indicated that the operational pattern virtually eliminated waterfowl nest flooding. DWR has proposed to modify future spring water level fluctuation in the Thermalito Afterbay to avoid future losses of waterfowl productivity.

WATER LEVEL FLUCTUATIONS THERMALITO AFTERBAY

- Nesting Clark's and western grebe colonies also have the potential to be adversely impacted by summer Afterbay water level fluctuations through stranding of floating nests.
- These grebes nest colonially in protected shallow water areas of the Afterbay.
- Excessive draw downs can strand nests on exposed mudflats leading to increased risk of predation or abandonment.
- Stranding of a limited number of nests was reported during 2003 at one colony.
- No abandonment or predation losses were identified and Thermalito grebe production/pair was the second highest level (1.41 young/brood) recorded in the 2003 statewide survey.

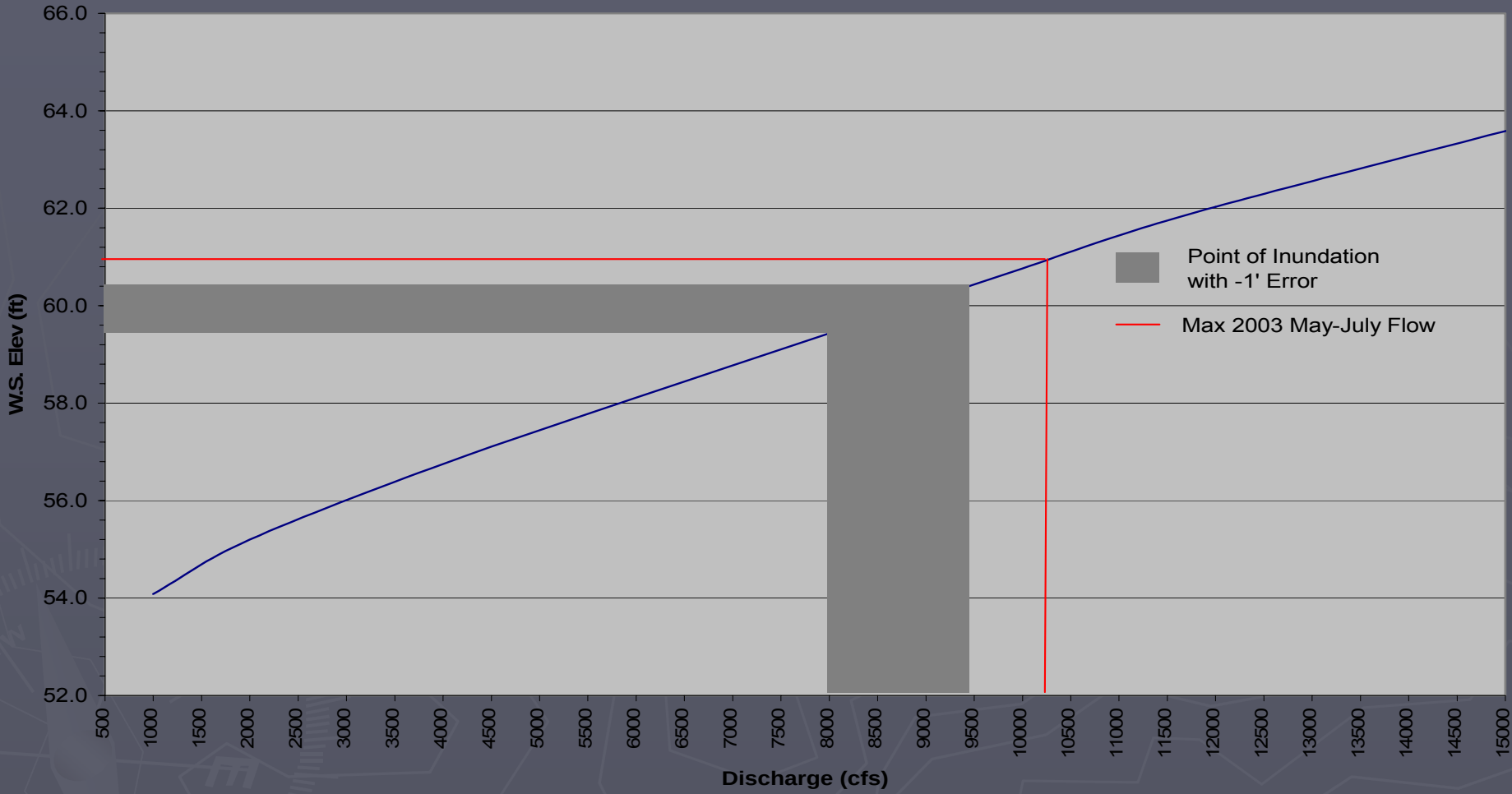
Feather River Flow Fluctuations

- Bank swallow, a State listed Threatened species, has the potential to be directly and indirectly impacted by both flood control and water supply operations on the Feather River below the project area. Bank swallows nest on eroded riverbanks and thus are probably the wildlife species most directly at risk from changes in project releases.

Feather River Flow Fluctuations

- stage/discharge relationships were compared to the elevation of the lowest burrow in each colony with a 1-foot buffer.
- This modeling indicates that 2003 project operations during early July had the potential to inundate at least a portion of nine of the fifteen active colonies while pre-fledged young are potentially present within the nest burrows.

Figure 5.3.4. 2003 stage/discharge relationship at bank swallow colony #4- RM 45.05



Feather River Flow Fluctuations

- Based on these modeling results, DWR initiated consultation with DFG to further evaluate potential losses and develop protection, mitigation, or enhancement measures.

Gravel Harvest

- Gravel harvest currently occurs within the portion of the Oroville Wildlife Area (OWA) which straddles the Feather River.
- Barren gravel/cobble piles currently exist on approximately 615 acres within the OWA.
- Potential wildlife impacts associated with gravel extraction and transportation include noise, dust, disturbance, direct mortality, and habitat modification/loss

Gravel Harvest

- Carefully designed and implemented gravel harvest within the OWA may well be the only effective large-scale, long-term habitat improvement tool available to land managers.
- Large areas of exposed dredger tailings provide habitat for few wildlife species and can act as a barrier to dispersal and movement of some species.
- DWR in cooperation with the California Department of Conservation (DOC), DFG, U. S. Fish and Wildlife Service (USF&WS) and the commercial and local mining interest will continue to evaluate opportunities to minimize impacts to wildlife and wildlife habitat while maximizing potential benefits associated with gravel harvest within the OWA.

Project Related Maintenance Activities

- Most ongoing maintenance practices have minimal impacts to wildlife populations or wildlife habitats. However, opportunities for modification of certain maintenance practices to minimize or avoid impacts to State or federally listed species have been identified. These maintenance activities include:
- road, fuel break, drainage system, and fence maintenance practices to minimize impacts to vernal pool invertebrates or valley elderberry longhorn beetle (VELB)
- current Butte County Mosquito Abatement practices in areas containing vernal pool habitats or VELB habitat

Project Related Maintenance Activities

- rodent control practices within giant garter snake habitat
- herbicide use within or adjacent to vernal pool habitats, giant garter snake habitats or VELB habitats
- bridge maintenance effects on nesting peregrine falcons
- seasonal limits on trail maintenance activities within bald eagle nest territories
- vegetative control within transmission line corridor effects on VELB

Evaluation of Direct and Indirect Habitat Losses

- Project features with primarily low levels of indirect wildlife habitat (cemetery, general recreation) loss occupy about 4,100 acres or 10 percent of the project area.
- Project features resulting in moderate levels of both direct and indirect habitat loss (trails, day use, campgrounds) total about 900 acres or about two percent of the project area.
- While project features resulting in direct loss of wildlife habitat (roads, boat ramps, parking) currently occupy about 1,200 acres or about three percent of the project area.

Evaluation of Direct and Indirect Habitat Losses

- Additional direct and indirect habitat losses may occur resulting from implementation of Relicensing Resource Actions.
- To the extent possible additional habitat loss or degradation should be avoided particularly in the portion of the project area managed as a State Wildlife Area.
- Relicensing stakeholders should be aware of the trade-offs associated with additional road or recreational developments and long-term maintenance of wildlife habitat.